DOCUMENT RESUME

ED 265 952 PS 015 613

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TITLE Context and Continuity: Changing Perspectives on Children.
INSTITUTION Erikson Inst. for Advanced Study in Child Development, Chicago, IL.
PUB DATE Apr 83
NOTE 18p.; In: New Directions in Studying Children. Speeches from the Conference of the Erikson Institute (Chicago, IL, April 29-30, 1983)--see PS 015 612.
PUB TYPE Collected Works - Conference Proceedings (021) -- Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Child Caregivers; *Child Development; *Parent Child Relationship; Research Needs; *Social Influences; *Systems Approach; Theories
IDENTIFIERS *Context Effect; Theoretic Orientation; Vygotsky (Lev S)

ABSTRACT

When studied closely, it is evident that children who seem to be developing through their own interactions with the environment are really benefiting from adult interactions in the process. The developing child must form a dyadic relationship with a caretaking adult. The complex workings of that dyadic unit now preoccupy researchers as they study interactions and are forced back to a more careful reexamination of context as well. Researchers now see development not as internally driven but as "outside-in." Each child grows up speaking a "mother tongue," a member of the parent's culture, but individually shaped in relation to that parent as distinct from all other members and speakers. As a result of taking the mother-child dyad as the unit of observation and analysis, a major direction of the 1980s focuses on interaction research. Two questions arise from recent studies. How can investigators observe interactions without being simply additive? How can they analyze the learning process taking place in interaction without reverting to neobehaviorist conditioning and contingency patterns? The challenge of the 1980s is to redefine "social" beyond just the notion of child-plus-other. Attention must also turn to the transformations of early dyadic relationships and early contexts constituting those relationships. (RH)

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Context and Continuity: Changing Perspectives on Children

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There has been a geometric expansion of our knowledge about children in recent decades. We have so much information that it is not always clear what to do with it -- how best to apply it in children's lives, or where we are headed in the future: What are the new directions in studying children? What ever happened to the old ways.

We will hear during this conference even more, new and exciting information about children and families. It may be appropriate, then, to start off with an overview of shared themes, assumptions and issues: in other words, to put the conference in context.

Whether we wish to intervene or simply to observe, to increase our knowledge of children or of ourselves as ex-children, to study children is to seek descriptions and explanations of change. The simplest definition of development is: change over time. It becomes slightly more complicated when we say change in what: mental structures, cognitive capacities, specific competencies, psychological functions, or abilities to process information.

Yet, to say that developmentalists study change over time does not really differentiate them from others who also study change over time, such as learning theorists or evolutionary biologists. It turns out, however, that in exploring how development, learning and evolution differ, we can trace the recent history of our changing perspectives on children in the past decades. And, it is these thoughts I would like to share with you this morning.

For, whereas both learning and development are concerned with change, they differ as to who is responsible for that change -- adult or child -- and thus ultimately in the motivation which explains change. Earlier developmental theories, influenced by neurophysiology, envisioned motivation from within the child, while learning theories, influenced by behaviorism, saw the adult as instigating change. Rising above this dialectic, current developmental theories see motivation arising out of interactions of both child and adult, working as a system. Thus, the old distinction between learning and development no longer holds.

A major difference, as we shall see, between development and evolution -- on the other hand -- is built out of this new synthesis of adult-child interaction, and concerns the adaptation of an organism to its environment. In simpler organisms, adaptation is a result of direct interface between organism and environment. But in humans with their highly elaborated, symbolic worlds, interface with the environment is mediated by interactions with others. Through interactions, contexts, as varied as the cultures and subcultures we see around us, are constantly defined and redefined.

My discussion this morning, then, will briefly trace this history which has brought us to our new direction in studying children, emphasizing interaction and context. At the end I will comment on the potential and the pitfalls we face as we try to integrate our wealth of information from many disciplines and professions into a new approach.

The relationship between development and learning has undergone much revision in our conceptualizations about young children. We used to believe that development referred only to postnatal growth which was on a neurophysiological timetable, continuing after birth processes set in motion at conception. That is, development was defined as an unfolding of abilities and properties according to an innate blueprint. Typical examples of development come from neurology and physiology:

* Mylenization of nerves is not complete at birth and takes several years, continuing ex-utero processes begun in-utero.
* It takes years for left and right hemispheres of the brain to fully lateralize with predominant functions for each and communication between them by neurotransmiters.
* Control of one's body progresses in an invariant order from control of head and eyes, to hands and coordination of eye and hand, then to lower body, feet, etc.; from gross motor to fine motor coordination.

Development has been described as unfolding in fits and starts creating stages marked alternately by conflict and calm, change and quiescence, which seem to indicate an emerging function and then its consolidation or integration with other functions. One should provide for continued ex-utero development an environment which would permit this unfolding; but it is not clear whether direct adult intervention can substantially alter these programs.

Learning, in contrast, covered what was not preprogrammed but was felt to be under the control of an adult who could train or teach the child according to smoother, more asymptotic learning curves or schedules. Language and the accumulation of information were two major categories subsumed under learning.

I started out from this perspective, but two events changed these views for me forever. In 1959 Noam Chomsky declared that whatever else children learn from adults, language cannot be included in that list. Language is acquired, not learned, meaning it falls under development, not learning. In an even more sweeping revision, Jean Piaget, through his monumental studies of young children, reclassified the rest of the growth of intelligence from learning into development. Children, we are told, with demiurgic force, extract from the environment what they need to fashion a universal language and intellectual system marked by stages of development. Each stage is characterized by the emergent mastery of a developmental task: coordinating actions or learning basic syntactic structures. Each subsequent stage is built upon the elaboration and consolidation of the previous masteries. For example: intellectual operations are built on earlier actions just as an explosion in vocabulary and more subtle morphosyntactic rules are made possible by early grammars. The later integration of these capacities enables the reversibility of operations and, for example, in language, the syntactic reversibility of active and passive moods. It is perhaps not coincidental that this later period of integration marks also the maturation of the frontal cortex, implicated -- to quote a recent author -- "in the highest level of goal-directed sets including complex

sequencing, the creation of long and short term plans, and the internal manipulation of representational systems...basic to abstract thinking" (Hadley, 1983:26).

The potential convergence of evidence from neurology, biology, psychology, psychoanalysis and linguistics is appealing and continues to excite researchers who focus attention on development over learning. Learning often seems, in fact, to disappear, replaced by cognitive development and cognitive science. Parents and teachers are often advised to just stand back and not get in the way of unfolding development; adults provide the context for development -- the "aliments" (food) as Piaget has said. Children are seen as little autodidacts, doin' what comes naturally!

Alas, we will not so easily solve the conundrums that have puzzled philosophers for centuries by simply shifting away from learning towards development. Buried in our developmental theories lie philosophical skeletons: the relationship of mind to body (in the case above, brain); and the relationship of biology to culture, otherwise known as our old friends, nature and nurture.

For, what happens when development doesn't unfold as theory dictates? Do we assume that these children are simply born with poorer or defective innate programs? We feel we must intervene, and in intervening we find that we <u>can</u> make a difference. Some examples:

* Parents who are helped to understand the difference between their needs and those of their children can become more effective in meeting children's needs.

* When parents talk to their children more, using language for multiple functions (to get things done, to direct bvehavior, to make personal contacts), children's verbal abilities improve earlier and faster.

* Early child-care and preschool programs like Head Start do make a difference, not only in school performance but in overall adjustment to society and its institutions.

* Teachers who restructure the learning situation -- materials, instruction, setting -- can enable children with learning problems to become more successful students.

* Children who appear to be at one operational level of competence can perform at a higher level with specific adult guidance.

In examining interventions, we find that we must amend our earlier theories. Adults, so important in learning, turn out to be significant factors in development as well. When we look more closely, children who seem to be developing through their own interaction with the environment are really benefitting from adult interactions in the process. The separateness of the individual infant resulting from physical birth had tricked us into viewing the child as a monad. We saw her/him all alone, on the one hand, dealing with the objective world, including physical and human objects, on the other. The child, we now see, must form a dyadic relationship with a caretaking adult; psychic, social and cognitive development take place in that unit. The complex workings of that dyadic unit preoccupy us now as we study interactions. However, as part of that unit -- the caretaking adult -- is also part of the environment or context, and so we are forced back to a more careful reexamination of context as well.

The caretaker's reemergence as important in cognitive development can be seen beginning in the late 1970's. For example, Bruner claimed of language development:

"There may indeed be something innate about the child's ability so swiftly to crack the linguistic code. But there is almost certainly something innate about the mother's ability to help him to do so" (1978:83). In fact, research in language development of the late 1970's underwent a radical shift from innate competence to minute studies of motherese, some of which came very close to old fashioned, pre-Chomskian behaviorist language learning. The same might be said of many studies of mother-infant behaviors during the late 1970's. In other words, we used to see development and learning as different. Then we gave up learning for development but found we had given up too much: the adult and the contextual environment. But as soon as we introduce the adult environment in our theories, it seems we run the risk of simply shifting from development to yet another version of conditioned learning.

Our goal is not to be stuck forever on that see-saw, but to form a synthesis. Therefore, supplementing rather than replacing earlier theories, we now turn to Vygotsky and the tradition of Soviet Psychology which he spawned and for which his name is emblematic. For all that we have learned from Piaget, we miss in his theory: the role of parents and other adults (who we find do make a difference); the formative use of symbol systems (unique to and therefore definitive of humanness); and a fuller understanding of context (which we now insist must be more than merely static background for independent development).

Piaget invoked biological adaptation to explain development. The same principles which regulate all organisms in relating physically to their environments, regulate cognitive adaptation as well. In essence, Piaget is saying, development is like evolution. Organisms must seek a state of equilibrium between their inner world and "umwelt" (the outer environment). Some authors have rephrased this as: the environment poses questions to which the organism must respond. Accommodation and assimilation are the basic modes of response, both biologically and cognitively. Even psychological structures are said to develop to regulate inner and outer tension states; a specific internal agency (the ego) has as its function adaptation to external reality.

Now, the gain is considerable in such an elegant theory -- elegant because parsimoniously it uses the same principles to explain disparate pheomena. What is obscured, however, is just now beginning to be questioned. Development is no more evolution than it is learning, even though some similarities may obtain. First of all as others have observed, evolution concerns populations while development concerns individuals; and individuals can show enormous variation compared to population norms. But more importantly, we don't know how evolution will turn out. Homo sapiens may be the apogee or, like the Dodo, just another dead end. Yet, everyone of us knows how development will turn out -- just like us! Parents know their children will be like them, or better versions of themselves. Theorists know, of course, and often they hypothesize a child who develops surprisingly into a little linguist, a little cognitive psychologist or mathematician. Is it a coincidence that Piaget, whose early work was on mollusks and later worked with mathematicians of the Bourbaki group, posits an ideal child who begins with a biological reflex and ends with mastery of logical transformations in the INRC group (identity, inverse, reciprocal, correlative transformations)?

I say this not as a criticism but to illustrate the similarities between theorists and parents. Parents' theories about children, it turns out, have great impact on how children develop. Parents' theories, fantasies, wishes, needs, etc. transmitted in rich symbolic systems are part of the environmental context which makes psychosocial and cognitive adaptation (i.e., development) different from just the biological change shared with other organisms (i.e., evolution). So the biological principles of evolution alone will not explain development.

Now we see development not as internally driven but as "outside - in", which Kenneth Kaye has described dramatically as follows: "The theater of development is not internal. It is an outdoor stage, and the parent is very much the director cuing the entrances and exists of the participating audience's favorite characters" (1982:122). The script that parents use is the unconscious and conscious results of their own childhoods

and later influences -- books, models, theories. Consequently, each child grows up speaking a "mother tongue", a member of the parent's culture, but individually shaped in relation to that parent as distinct from all other members and speakers, even familial cohorts. The process by which this is accomplished is incompletely understood; but the key we feel lies in the dyadic unit mentioned earlier, not in any simple teaching or training.

As an aside: when researchers looked at mothers' language to their children, they found differences between what mothers and children say. Researchers concluded, then, that mothers could not be teaching their children how to speak and were not necessary for language to develop. This is, of course, only true if one assumes a notion of language learning as training. Mothers may be doing something else, however, which supports language development in a less obvious way. Jerry Bruner has written eloquently on this topic and perhaps will speak more about this in his presentation.

As a result of taking the mother-child dyad as our unit of observation and analysis, a major direction of the 1980's focuses on interaction research: mother-child, child-child, and teacher-child interactions. The social origins of psychological phenomena emphasized by Vygotsky, have been picked up by many other theorists as theme and variations for the 1980's. Two questions arise from these new studies, however. The first: How to observe interactions without simply being additive. That is, to a list of descriptions of the child, too often we merely add adult or other descriptors and call the sum of these, interaction. The second question is: How to analyze the learning process taking place in the interaction without slipping back into neobehaviorist conditioning and contingency patterns, where one member of the dyad trains the other.

The challenge for the 1980's, then as I see it, is to redefine "social" beyond just the notion of child-plus-other. Perhaps taking a systems perspective will help us here, seeing the child composed of subsystems, him/herself a subsystem with others. In open systems, as we know, information flows between parts and whole; and parts and wholes are

constantly redefined depending upon where one places a boundary or frame at any given time of observation and for any given reason. Thus, the whole may be now the child but another time the mother and child dyad, or even a larger context of which the dyad is a subsystem. We may even be able to get away from "imwelt" and "umwelt" -- inner and outer -- altogether.

Certainly, new attempts to reexamine contexts seem one of the most promising new directions. Words like scripts, strips, scenes, episodes, frames and formats are heard more often these days and these are all attempts to open up the boundaries of what we study as we understand that the child is but a small part of larger systems. We see context, not as static and given background -- the matrix into which what we are studying is embedded -- but as actively constructed by participants. Development describes how children become equal participants in systems to which they are originally only a symbiont or "apprenticed" (Kaye, 1982). In these apprenticeships, parents use their theories about children to engage them in activities as if the children were participants. For example: mothers treat anything young children say as a turn in conversational dialogues. Parents hold children up and move them forward as if walking. Ultimately, in a complex interplay of genetic predisposition and contextual activities, children become talkers and walkers.

We, as adults, become so adept at constructing and controlling contexts that we imagine these abilities as context-free. We talk about them as "cognitive structures" or "language competence" or "psychic structure", which we reify as entities and make the goals of development. Children are expected to perform relative to these competences or are judged accordingly. Contexts have been seen as but means to these ends. We are used to saying, for example, that a major advancement in language acquisition is the de-contextualization of language from the concrete situations in which it transpires. In cognitive development as well we speak of the child's progression to formal operational intelligence as a freedom from the actions, perceptions and concrete materials of

preceding stages. Psychologically, we talk of the individual, separate and free from symbiosis.

Nevertheless, the dominance of competence over performance, of structure over function, of context-free over context-dependent, is beginning to wane. Jerry Bruner has captured the shift of this new direction very well when he says: "The classical approach to the explanation of continuity was to say that with increasing mastery, the child's language moved from being highly dependent on its context of use to being, somehow, less and less context dependent. It is a view that is harder and harder to live with. At most we can say that adult language is context dependent in a different way than child language" (1983 MS:11). And we can add: formal operational children are context-dependent differently from preoperational children...and so forth.

Once again, I fear, we have been tricked by our own perceptions -- which places us as theorists somewhere in the preoperational stage of development. Just as the separateness of the individual and increasing autonomy should not delude us into thinking that the individual alone is our unit of study, so too we should not be deluded into believing in the disappearance of contexts. I am reminded of Vygotsky's comment on the apparent disappearance of egocentric speech -- speech for oneself -- seemingly replaced by speech for others. Vygotsky notes: "To interpret the sinking coefficient of egocentric speech as a sign that this kind of speech is dying out is like saying that the child stops counting when he ceases to use his fingers and starts adding in his head. In reality, behind the symptoms of dissolution lies a <u>progressive</u> development"...a transformation of the phenomena into a new and more abstract form." (1962:135).

It is to the transformations of early dyadic relationships and early contexts which constitute those relationships that our efforts must turn. These do not disappear but are transformed into the presuppositions for ever new development. It is the context, of course, which continues; not some abstract entity like structures which continues in context or in spite of context. Contexts which are created today become the shared

realities which continue tomorrow. The construction of reality is not a solipsistic activity; it is a shared, cooperative activity.

As a concrete example, we may say that what has happened at home becomes the presuppositions the child brings to school (and ultimately, vice versa). For some children more than others, the given and the new match -- home and school. To find the cause of mismatch, we should look not to deficits in child competencies, to failures of parents or environment, but to differences in previous interactions. And I suspect James Comer will have more to say on this topic in his presentation. Recent cross-cultural studies by Michael Cole and his associates which examine variations in context-building are most helpful here, and give us insights into children within our own culture with learning problems.

Our search for a better understanding of the complexity of childhood is informed by people from many different fields and professions. For example: one of our more provocative sources for future studies of contexts is the work of Gregory Bateson whose ideas of frame and boundary were derived from anthropological and ethological research. Bateson's work on play and fantasy illuminates the important role of play for children in creating and controlling contexts. We look also to anthropologists like Clifford Geertz, philosophers like Jurgen Habermas, sociologists like Erving Goffman, psychologists like Ragnar Rommetveit -- ethnographers, psychoanalysts, psychiatrists and teachers, too numerous to mention.

Commenting on the new directions in science, evolutionary biologist Stephen Jay Gould has said: "The watchwords of this new way are 'holism' and 'ecology'. We must recognize inseparable union and interaction as basic realities " (NYRB xxx3, 3/3/83:23-25). This new approach to science infuses our work as well and it is gratifying to find that child develoment is in step with changes elsewhere in science. But we must also face the attendant challenges.

I have already mentioned the methodological challenges. We must find new ways of describing and analyzing these "inseparable unions" and "interactions". In pursuit of methodologies, we must learn to domesticate the new technologies of videotape and computer, resisting the temptation to make these instruments into methods, or ends in and of themselves.

Gould raises another challenge, that of explanation. He states: "Complex systems, not separate building blocks, must be our units of explanation...The antireductionist model tries to understand nature as a hierarchy of interdependent levels, each coherent in itself, but each linked by ties of feedback to adjacent levels...no level is an ultimate reality and reference point for extrapolation; all are legitimate, interfacing aspects of our natural world" (NYRB, xxx3, 3/ /'83:23-25).

The message is clear -- integration without reductionism: on the one hand, we cannot reduce psychology to biology or cognition to neurology; on the other hand, our developmental theories can be enriched by findings fedback from other levels, and we must seek these "ties" and "interfacing aspects".

I will mention only two examples from other levels which raise interesting issues for me. (I will use neurology and biology since I used such examples earlier.)

(1) Evidence from neurology suggests multiple and independent registration of experiences in both hemispheres of the brain, with coordination occurring only later in development. Immediate questions arise on how to adapt instruction during the preschool period to enable learning in both verbal and nonverbal modalities. What does it mean in terms of memory and reading or writing which combine both visual and verbal symbols; what should we expect in behaviors? On a theoretical level, should we seek the same or even parallel theories of development for language and other forms of behavior or are these initially independent?

The redundancy of multiple coding is evident not only in neurology but in biology as well, e.g., the genetic material of chromosomes. Yet developmental theories continue to pursue a simple linear causality in their explanations, often interpreting correlations as causalities. Should we look instead to principles which incorporate redundancy, such as multideterminism, overdeterminism, multi- or equifinality, more appropriate than linear causality to open systems.

Redundancy assures outcome -- about 50% of language, for example, is redundant and insures my message is transmitted in spite of noise or interference. Redundancy also insures change: the greater the redundancy, the more room for adaptation. Shouldn't something so important to the future of the species as our lengthy human childhood be infused with a high degree of redundancy?

(2) My second example comes from biology: Controversies in evolutionary biology pose alternate theories of change: one by gradual increments, another by "punctuated evolution" according to selective pressures. Should we expect cognitive and psychosocial development to be continuous, smooth and gradual, or discontinous, as Jerry Kagan suggests, marked by eruptions of new abilities?

A word of caution is in order. We must beware using our new theories to create new family romances of perfect adaptation and adjustment resulting from a fairy tale version of mother-child interaction, where perfect reciprocity, mirroring, scaffolding, or whatever, is the only road to healthy development. Such fictions not only distort reality but are a heavy and guilty burden for adults to bear. Studies of children from different cultures and backgrounds, and case studies from psychopathology, teach us how rich are the varieties of interaction, and how adaptive to survival. Although often resistant to change, humans have capacities for change - and therefore for development -

unprecedented in evolution because they are not constrained by biological principles alone. The geneticist Medar has noted that, while physical development follows Darwin's principle of natural selection, culture follows those of Lamarck: the former takes long periods of time, the latter may be accomplished in one generation through the transmission of information.

The transmission of acquired knowledge not only permits the passing along from one generation to another of pathological behaviors, only too familiar to us — poor parenting, underachievement, teenage pregnancy, alcoholism, drug abuse, child abuse — but also allows the interruption of these cycles with appropriate intervention measures: therapy, day care and schooling, parent-modeling and parent-support groups, foster parent and adoption programs, and many more.

In our search for a synthesis we must guard against premature closure and the simple solution. Some recent, familiar examples:

* It's all genetic -- There's nothing we can do; it's all in the gene, at least until the *merger of evolution and development made possible by recombinant genetics (the so-called brave new world of "designer genes").*
* It's all environmental -- There's nothing we *can't* change (B. F. Skinner's Brave New World).
* It's all neurological -- There has to be a physical trace and that's all that's interesting ("brain events").
* It's all chemical -- We can "cure" behavior with a pill.
* It's all in early imprinting or bonding -- One moment makes or breaks future development.

These simple solutions do not offer a synthesis, but rather a return to old, failed dichotomies. Fortunately, the human child is much too complex for simple solutions. This means there is still much to discover, if like children we retain our capacity for curiosity and openness to possibilities.

In the workshops, panels and lectures of the next two days you will be participating with people who have remained curious about children and families. If I told you they had answers to the questions I have raised, you would be rightly skeptical; and they would be rightly furious, having to bear such an onus. They are, instead, people who are asking interesting questions and I hope the context provided by this conference will be transformed through your work and continue into the future.

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